

burne, New Hampshire, leaving there in July for Kittery Point, Maine. He was gradually regaining strength, and at one time even hoped to resume work in the fall. As the time, however, approached, it was clearly impossible, and he was granted a year's leave of absence. On October 14, Professor and Mrs. Penhallow sailed from Montreal for England, intending to settle in Cornwall where a complete change and rest would, it was confidently believed, restore him to health. His friends little realized that they should never see him again. While still at sea on October 20, five days' sail from Liverpool, he died and, though we all mourn the death of a valued member of our Club and some of us of a warm and cherished friend, yet we can rejoice that his record is one of a life well spent in increasing the world's knowledge of botanical science, and we can be proud that Professor David Pearce Penhallow was connected so long with us.

A NEW SPECIES OF SCIRPUS FROM MASSACHUSETTS AND NEW JERSEY.

M. L. FERNALD.

IN June, 1910, the writer received from Mr. Witmer Stone of the Academy of Natural Sciences of Philadelphia a *Scirpus* from the New Jersey Pine Barrens, with the following self-explanatory communication:

"Last year at about this time I found a *Scirpus* — just one plant — that recalled *S. atrocinctus* but seemed to differ in several particulars. In spite of numerous efforts I failed to find any more until now, when I have just found about an acre of it at another locality (near Williamstown Junction on the Atlantic City R. R.). I am sending you some fresh specimens for your opinion but fear they will be dried out when they reach you. I can, however, send herbarium specimens later if you desire them. *S. atrocinctus* we get only up on top of the Alleghanies and the Pocono Mountains and it blooms *much* later than this. I should thank you very much for your opinion of this Pine Barren plant. If it is *atrocinctus* it is a very remarkable occurrence. I might say that the black bands were distinctly glutinous on the growing plant."

As feared by Mr. Stone the specimens, when they reached Cambridge, were dried out so that a close study of the plant, which seemed like an extreme variant of *Scirpus atrocinctus*, was deferred until the receipt of well pressed and characteristic material in the autumn. A preliminary examination showed the Pine Barren plant to have several differences from *S. atrocinctus*, but with only a single collection at hand the writer was inclined to regard it as a pronounced southern variety of that boreal species. Upon further communication with Mr. Stone it was learned that Mr. Bayard Long of the Philadelphia Academy had made a thorough study of the plant and would soon forward his results to Cambridge.

In the mean time, in sorting the *Cyperaceae* contained in the herbarium of Mr. Charles E. Faxon, recently presented to the Gray Herbarium, the writer's attention was arrested by one specimen so strongly suggesting the New Jersey material that it was examined in detail and found to have the same large stature, glutinous black bases to the involucreal leaves, long pedicels, spikelets, scales and anthers, and the distinctive dark-reddish achenes of the Pine Barren plant. Mr. Faxon's plant was collected in Boston in the early days of his botanizing and, though the label contained no more definite data, it was sufficient to stimulate a fruitful inquiry. Accordingly, when that indefatigable explorer of the Charles River system, Mr. Fayette F. Forbes, called next day at the Gray Herbarium, he was shown the new plant and in the evening telephoned: "The new *Scirpus* grows on the Charles River meadows at Dedham, on our Brookline water-works land. I think it is abundant there; at least I have always collected it there as *S. atrocinctus*." The next evening, at the December meeting of the New England Botanical Club, the writer, now further reinforced by flowering and fruiting sheets from Mr. Forbes which showed beautifully all the characteristics of the Stone and the Faxon specimens, exhibited the plant as a new species likely to be found elsewhere in southern New England.

In a few days came a very valuable detailed letter from Mr. Long emphasizing the specific claims of the plant and followed by a suite of specimens from the Williamstown Junction station and from Andrews, on the Great Egg Harbor River. These were perfectly characteristic and renewed the already well grounded conviction that we were dealing with a very distinct but undescribed Wool Grass. As indicated by the notes prepared by Mr. Long during the winter of 1909-10, he had already worked out the specific characters of the

plant and its relation to the more northern *S. atrocinctus*; and, since Mr. Long has on other occasions shown keen discrimination in his study of the *Cyperaceae*, it is a pleasure permanently to associate his name with the new

SCIRPUS Longii n. sp. Planta robusta; culmis 9–14 dm. altis ad nodos lucidis; foliis viridibus vel glaucescentibus 3–8 mm. latis marginibus carinulaque serrulatis, basilaribus copiosis confertis basi plus minusve nodulosis, caulinis remotis; cyma umbelliformi irregulariter supra decomposita saepissime opulenta 1–1.8 (rare 3) dm. alta, radiis scaberrimis, longioribus 2–6 erectis, brevioribus numerosis patentis vel arcuatis; involucri 2–3-phyllo, phyllis umbelliformibus vel eam subaequantibus basi nigrescentibus glutinosisque; involucrellis nigrescentibus; spiculis ellipsoideis obtusis 4–8 demum 6–10 mm. longis, lateralibus longe pedicellatis; squamis nigrescentibus carinato-convexis oblongis obtusis 2–3 mm. longis; setis albescentibus subtilissimis tardius longe exsertis crispo-flexuosis glabris; stylo exserto pertenui longe trifido, ramis 1–1.5 mm. longis; antheris linearibus 1–2 (rare 2.5) mm. longis; achenio ellipsoideo-obovoideo trigono circa 0.5 mm. longo castaneo vel badio.

Plant robust: culms 9–14 dm. high, lustrous at the nodes: leaves green or slightly glaucous, 3–8 mm. wide, serrulate along the margins and the narrow keel; the basal numerous and crowded, more or less nodulose toward the base; the cauline remote: cyme umbelliform, irregularly decompound, usually very full, 1–1.8 (rarely 3) dm. high; rays scabridulous; the longer 2–6, erect; the shorter numerous, spreading or curved: involucre of 2–3 leaves; these shorter than or about equaling the umbel, blackish and glutinous at base: involucels blackish: spikelets ellipsoid, obtuse, 4–8, becoming 6–10, mm. long; the lateral long-pedicelled: scales blackish, carinate-convex, oblong, obtuse, 2–3 mm. long: bristles whitish, extremely slender, finally long-exserted, crisp-flexuose, glabrous: style exserted, deeply trifid, the branches 1–1.5 mm. long: anthers linear, 1–2 (rarely 2.5) mm. long: achene ellipsoid-obovoid, trigonous, about 0.5 mm. long, chestnut- or reddish-brown.— Meadows, swamps and fresh marshes, often in shallow water, Norfolk County, Massachusetts, and Burlington and Camden Counties, New Jersey. TYPE: northeast of Andrews, along Great Egg Harbor River, Camden County, New Jersey, June 18, 1910, *Bayard Long*, no. 4014 in Gray Herb. (duplicate in Herb. Acad. Phila.). Other material studied from MASSACHUSETTS: Boston, *C. E. Faxon*; swamp, Chamberlain lot, Dedham, June 3, 1900 (fl.), *F. F. Forbes*; damp ground, Charles River Meadows, Dedham, June 26, 1908 (old fruit), *F. F. Forbes*. NEW JERSEY: edge of the Pine Barrens, growing in water, Sicklerville (= Andrews of Long's label), June 18, 1910, *Witmer Stone*; Andrews, June 18, 1910, *B. Long*, no 4008a (form with condensed inflorescence); southwest of Williamstown Junction, June 18, 1910, *W. Stone*, *B. Long*, no. 4039.

Scirpus Longii is quickly distinguished from all its allies by its reddish brown or castaneous achenes, all the other species — *S. cyperinus* (L.) Kunth, *S. Eriophorum* Michx., *S. pedicellatus* Fernald, and *S. atrocinctus* Fernald — having whitish or cream-colored, at most buff, achenes. From *S. atrocinctus*, which it suggests in its blackish-based involucre, and blackish involucels and scales, it is further distinguished by the glutinous base of the involucre; the longer usually blacker scales (those of *S. atrocinctus* being 1.5–2 mm. long); the longer often paler bristles which, as expressed by Mr. Long, give the inflorescence a “shaggier” appearance; the longer filaments; and the longer anthers, 1–2, rarely 2.5 mm. long (those of *S. atrocinctus* being 0.3–0.5 mm. long); and by the style-branches 1–1.5 mm. long (in *S. atrocinctus* 0.5–0.75 mm. long). *S. Longii* is also a more robust plant, with a larger inflorescence and longer spikelets than are ordinarily seen in *S. atrocinctus*, though in these characters it is approached by the somewhat obscure *S. atrocinctus*, var. *grandis* Fernald. As stated by Messrs. Long and Stone *S. Longii* matures somewhat earlier than *S. atrocinctus*, the New Jersey material of the former having mature achenes on June 18 (and presumably earlier); while *S. atrocinctus* at its southernmost stations, on the mountains of Pennsylvania, is considerably later. In eastern Massachusetts, this difference is also well shown, Mr. Forbes’s material of *S. Longii* collected on June 26 having the scales about half gone; while *S. atrocinctus* in the same state of development is collected in Middlesex County from July 15–20.

The following extract from a letter from Mr. Long will be of interest to students of the New Jersey flora.

“The most abundant general locality known to us is that from which Mr. Stone sent you material. I think he probably called it Sickler-ville [Camden Co., N. J.]. On my printed labels it (or rather the two stations) are called Andrews. We collected the *Scirpus* from two large stations n. e. of Andrews, along the Atlantic City R. R. (Williamstown Br.). I also have material from a third bog s. w. of Williamstown Junc., along the same railroad and in the same region as the other two. . . . In all these stations fruiting plants were extremely abundant, covering the bogs solidly over large areas to the exclusion of other species. But in our two other localities, though stools of apparently the same plant were common, only a single fruiting culm was found at each. Probably this was due merely to seasonal variation in abundance of flowering. The one specimen is Stone 11594, with the label reading: ‘Bog along Wading River midway between

Jones' Mill and Speedwell,' with the date July 9, 1909. The other, my own 4273 from Winslow Junc., south along A. C. R. R., on Penny-pot Stream (branch of Great Egg Harbor River), June 23, 1910. This gives stations a little more than twenty miles apart, and on two of the larger rivers of N. J. All the localities are distinctly pine-barren. Probably our plant is another peculiar pine-barren form."

"The habitat is quite characteristic. All five stations are similar. It might be called an open pine-barren marsh, scarcely 'bog.' It is the peculiar open area in the pines, supporting commonly only herbaceous vegetation and surrounded by thickets and woods, that occurs mostly along or in the vicinity of the bigger streams. It is not characteristically sphagnous and the vegetation is mostly rank. In spring it is generally quite flooded, but dries out during the summer. The *Scirpus* at Andrews was in a foot, or probably more, of water."

One of the most interesting points in regard to this new *Scirpus* is, that by the Philadelphia botanists it is considered a very typical member of the Pine Barren flora, being confined in their region to a small area of Pine Barren country; and that it is as yet unknown elsewhere except along the Charles River in eastern Massachusetts. The latter region, with the adjacent valleys of the Neponset, Concord, Mystic, and other small rivers, marks nearly or quite the northeastern limit of many plants, local with us but by no means so rare in New Jersey,—*Lilium superbum*, *Spiranthes Beckii*, *Sagina decumbens*, *Draba caroliniana*, *Cassia Chamaecrista*, *Crotalaria sagittalis*, *Polygala Nuttallii*, *Ilex glabra*, *Rotala ramosior*, *Ludvigia sphaerocarpa*, *Proserpinaca pectinata*, *Hydrocotyle umbellata*, *Cuscuta arvensis*, *C. compacta*, *Lycopus rubellus*, *Eupatorium rotundifolium*, *E. aromaticum*, *Aster spectabilis*, *Coreopsis rosea*, etc., etc.—and most of these species are found at scattered (or sometimes numerous) stations, chiefly on the Cretaceous or Tertiary sands and clays, in southern New England, on Long Island or on Staten Island. It is, then, reasonable to suppose that *Scirpus Longii* is to be classed with them as a member of the Pine Barren flora which extends, in somewhat reduced abundance, well beyond the southeastern Coastal Plain into the more sterile districts of coastwise New England.

GRAY HERBARIUM.

THE SUBTERRANEAN ORGANS OF CINNA ARUNDINACEA.

AGNES CHASE.

(Plate 85.)

IN October of 1910, Mr. Thomas L. Cooper of Decatur, Georgia, sent to the Department of Agriculture a box containing clusters of moniliform underground organs with young plants attached by thread-like rootstocks. These were identified as belonging to some grass, the "bulbs" being much swollen and greatly shortened internodes, the constricted portion being the node, but we knew of no grass having such an underground habit. When shown the specimens on his return from Mexico Prof. Hitchcock suggested *Cinna arundinacea* L. as the species producing the curious organs. Herbarium specimens of this species showed many of the culms to have slightly swollen bases.

Late in November a colony of *Cinna* in Virginia near the Potomac River was visited and specimens secured with clustered culms, each with a swollen corm-like base, as in *Panicum bulbosum*, and, less conspicuously, in several species of *Melica*. These swollen bases consisted of one to three (mostly one) internodes, constricted at the node above and below. No moniliform organs were found, but the soil was a heavy clay and it is possible the delicate connecting runners were broken, nor was the colony a large one. The specimens secured, however, served to identify the species with those sent from Georgia. A second supply of the underground organs attached to more developed plants was kindly sent by Mr. Cooper in December. The soil surrounding them was loose and sandy which may account either for the great development of these organs or for their being obtained attached to the plants.

These may be regarded as corms, constricted at the joints. They consist of two to five joints, 5 to 10 mm. in the greatest diameter, and produce rootlets and rootstocks or runners from the nodes. It is not certain how these moniliform corms are formed but they would seem to be the bases of old culms from which the aerial portion has entirely disappeared, since each is tipped by a very hard remnant of apparently an unswollen joint. Sometimes two or three of these moniliform corms are united in a cluster by very short rootstocks.

In cross section these are shown to have a loosely cellular structure, consisting of thin-walled parenchyma, with a few slender, scarcely lignified vascular bundles interspersed. Mr. C. S. Hudson examined these corms and states that they contain no starch. We have not as yet obtained a sufficient quantity to enable him to determine the chemical nature of the cell contents.

The connecting rootstocks or runners are 3 to 10 or 15 cm. long, about 1 mm. thick, obscurely angled, with irregular internodes, and sparingly branching or simple. The thin scales are often reduced to shreds.

The illustration shows one of the moniliform corms with runners connecting it to young plants. Two very young buds may be seen at the nodes and a third short runner with a slightly swollen internode at the end.

The habit here shown is unlike that of any grass so far as we know, *Panicum bulbosum* H. B. K. most nearly approximating it. At first sight these moniliform corms suggest some pathological condition or that the swellings may be occupied by nematodes but a dozen or more of these corms were dissected without finding either worms or diseased tissue.

It would be greatly appreciated if local botanists will examine colonies of either species of *Cinna* for these subterranean organs and send specimens fresh if possible to the writer at the Department of Agriculture.

BUREAU OF PLANT INDUSTRY, Washington, D. C.

ERUCASTRUM POLLICHII ADVENTIVE IN AMERICA.

B. L. ROBINSON.

THE difficulty which has been experienced in ascertaining the precise dates and places at which some European plants, such as *Lactuca Scariola* L., *Sisymbrium altissimum* L., *Brassica juncea* (L.) Cosson., etc., now widely distributed as weeds in America, first reached our continent, suggests the desirability of putting promptly on record the appearance of such related species as may be discovered getting a foothold upon American soil, for these also may in future become equally important elements in our flora.

Some five years ago Mr. William Finger sent to the Gray Herbarium for identification a *Sisymbrium*-like crucifer, which he had collected, 18 October, 1903, along the tracks of a suburban electric line, just beyond the city-limits of Milwaukee. On comparison with European specimens in the Gray Herbarium the plant was determined by the writer as *Diplotaxis bracteata* Gren. & Godr. At the time there appeared to be no record of any other American occurrence of this species, and its single appearance at Milwaukee, a manufacturing and shipping center, seemed too casual to warrant published record.

Some weeks ago Miss Martha Louise Loomis of Sherborn, Massachusetts, sent to the Gray Herbarium for determination another specimen of the same species. It was one of two individuals, which she had discovered and collected in gravelly soil beside the railroad at Sherborn, 4 September, 1910. This second station, at a great distance from the first, suggests that the species is likely to turn up elsewhere in America, possibly to spread and become established in the manner of its near relatives *Diplotaxis muralis* (L.) DC. and *D. tenuifolia* (L.) DC. Though the plant is not yet so firmly fixed as to justify its inclusion in our manuals, there seem to be grounds for putting its American occurrence on record and assembling for the convenience of local botanists its rather extended synonymy. From the latter it will be seen that recent and excellent European authorities are inclined to recognize the validity of the genus *Erucastrum* and maintain it as a convenient disposition for a dubious group of plants which, though in most respects similar to *Diplotaxis*, lack the double row of seeds characteristic of that genus. This view being accepted and the international rules of nomenclature applied, the species may be recorded as follows:

ERUCASTRUM POLLICHII Schimp. & Spenn. Fl. Frib. iii. 946 (1829); Coste, Fl. Fr. i. 80 (1901); Garcke, Fl. Deutschl. ed. 20, 345, f. 1064 (1908); Schinz & Keller, Fl. d. Schw. ed. 3, 237 (1909). *Sisymbrium Erucastrum* Poll. Hist. Pl. Palat. ii. 284 (1777). *Brassica Erucastrum*, β *ochroleuca* Gaud. Fl. Helv. iv. 381 (1829). *E. inodorum* Reichenb. Fl. Excurs. 693 (1830), and Ic. Fl. Germ. ii. t. 89, f. 4428 (1837-8). *Sisymbrium hirtum* Host. Fl. Aust. ii. 261 (1831). *Brassica ochroleuca* Soy.-Will. Ann. Sci. Nat. ser. 2, ii. 116 (1834). *Sisymbrium gallicum* Schleich. ex Soy.-Will. l. c., in synonym. *Diplotaxis bracteata* Gren. & Godr. Fl. Fr. i. 81 (1847); Rouy & Fouc. Fl. Fr. ii. 44 (1895). *Brassica obtusangula*, var. β *Pollichii* Archang. Comp. Fl. Ital. 45 (1882), and ed. 2, 267 (1894). *Erucastrum bracteatum* St. Lag. in Cariot, Etude d. Fl. ed. 8, ii. 54 (1889).—Annual, erect or ascending,

2-4 dm. high, with habit somewhat as in *Sisymbrium altissimum*; stem retrorsely pubescent, the hairs being simple; leaves oblong in general outline, deeply pinnatifid to decidedly bipinnatifid, the lobes rounded, the sinuses broad and usually obtuse or truncate; racemes at length elongated, loose, the pedicels slender, ascending or so widely spreading as to be nearly horizontal, in fruit 6-10 mm. long, the lower ones subtended by distinct (though much reduced) leaves or leaflike bracts; flowers of medium size; petals pale yellow, 5 mm. in length; pods linear, subterete, 2.5-3.5 cm. long, 1-2 mm. in thickness, tipped with a slender style about 3 mm. long; seeds essentially in a single row in each cell.—Widely distributed in Central and Western Europe; adventive along railways, Milwaukee, Wisconsin, *Wm. Finger*, and Sherborn, Massachusetts, *Miss M. L. Loomis*.

Little difficulty should be experienced in recognizing this species, for its characteristic bracts, though not specially conspicuous, are readily seen and form a feature unusual in cruciferous plants.

GRAY HERBARIUM.

POPULUS VIRGINIANA AND P. ANGULATA.

H. H. BARTLETT.

IN American botanical works it is customary to include in the synonymy of *Populus deltoides* several names which are maintained in Europe for trees of marked specific characters. Thus, Schneider¹ distinguishes three species, *Populus deltoides*, *P. monilifera* and *P. angulata* in place of the *P. deltoides* of our manuals. In his *Elysium Marianum*, Mr. Tidestrom² maintains the first and second of these three as distinct (under the names *Aigeiros deltoides* and *A. virginiana*) but the third is not recognized in any current American work. Last October the writer found *Populus virginiana* and *P. angulata* growing abundantly on both the South Carolina and Georgia sides of the Savannah River, at Augusta. They were so clearly different species that specimens were collected for identification by Mr. Tidestrom, who is now studying the poplars.

¹ *Illustriertes Handbuch der Laubholzkunde*, i, pp. 7-9 (1904).

² *Elysium Marianum*, iii, part 13, pp. 16-17 (1910).